

SECTION 1: Identification

1.1. Identification

Product form : Mixtures
Product name : Slag Cement, Slag, Ground Granulated Blast Furnace Slag (GGBFS)

1.2. Recommended use and restrictions on use

Recommended use : Building materials, construction, a basic ingredient in concrete

1.3. Supplier

CEMEX
10100 Katy Freeway, Suite 300
Houston TX, 77043
T Customer Care 1-800-99-CEMEX
www.CEMEXUSA.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

| | |
|---|------|
| Skin corrosion/irritation Category 2 | H315 |
| Serious eye damage/eye irritation Category 1 | H318 |
| Carcinogenicity Category 2 | H351 |
| Specific target organ toxicity (single exposure) Category 3 | H335 |

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H315 - Causes skin irritation
H318 - Causes serious eye damage
H335 - May cause respiratory irritation
H351 - Suspected of causing cancer (Inhalation, oral)

Precautionary statements (GHS-US) :

P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood.
P261 - Avoid breathing dust
P264 - Wash hands, forearms and face thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective clothing, protective gloves, face protection.
P302+P352 - If on skin: wash with plenty of foam.
P304+P340 - If inhaled: remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 - If exposed or concerned: get medical advice/attention.
P310 - Immediately call a POISON CENTER
P312 - Call a POISON CENTER if you feel unwell.
P321 - Specific treatment (see section 4 on this SDS)
P332+P313 - If skin irritation occurs: get medical advice/attention
P362+P364 - Take off contaminated clothing and wash it before reuse
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up
P501 - Dispose of contents/container to in accordance with local/regional/international regulations.

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2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : During handling, silica containing dusts may be formed. When the product is mixed with water, calcium hydroxide is produced in an alkaline reaction (PH 9-11). Slag Cement-avoid exposure to acids in low pH environments. Product exposed directly to acids in a low pH environment (pH<5) may release hydrogen sulfide. Hydrogen sulfide is a hazardous, toxic and poisonous gas. Reactive or incompatible with the following materials: oxidizing materials, acids, aluminum and ammonium salt. Toxic gases or vapors may be given off depending on the acid involved. Reacts with acids, aluminum metals and ammonium salts. Aluminum powder and other alkali and alkaline earth elements will react in wet mortar or concrete, liberating hydrogen gas. Silica reacts violently with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride yielding possible fire and/or explosions. Silicates dissolve readily in hydrofluoric acid producing a corrosive gas-silicon tetrafluoride.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

| Name | Product identifier | % | GHS-US classification |
|--------------------------------------|---------------------|----------|---|
| Ground granulated blast furnace slag | (CAS No) 65996-69-2 | 95 - 100 | Not classified |
| CALCIUM OXIDE | (CAS No) 1305-78-8 | 35 - 42 | Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335 |
| QUARTZ | (CAS No) 14808-60-7 | 0 - 5 | Eye Irrit. 2A, H319 Carc. 1A, H350 STOT SE 3, H335 STOT RE 2, H373 |

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : IF exposed or concerned: get medical advice/attention.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor/physician if you feel unwell.
First-aid measures after skin contact : Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: get medical advice/attention.
First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
First-aid measures after ingestion : Call a poison center/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation : May cause respiratory irritation.
Symptoms/effects after skin contact : Irritation.
Symptoms/effects after eye contact : Serious damage to eyes.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : FIRE :
Small Fire • Dry chemical, CO₂ or water spray.
Large Fire • Dry chemical, CO₂, alcohol-resistant foam or water spray.

5.2. Specific hazards arising from the chemical

Reactivity : The product is non-reactive under normal conditions of use, storage and transport.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with skin and eyes.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Mechanically recover the product. Notify authorities if product enters sewers or public waters.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure by obtaining and following special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe dust. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate.

Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| Calcium Oxide (1305-78-8) | | |
|---------------------------|-------------------------------------|----------------------|
| ACGIH | ACGIH TWA (mg/m ³) | 2 mg/m ³ |
| ACGIH | Remark (ACGIH) | URT irr |
| OSHA | OSHA PEL (TWA) (mg/m ³) | 5 mg/m ³ |
| NIOSH | NIOSH IDLH (mg/m ³) | 25 mg/m ³ |

| Magnesium Oxide (1309-48-4) | | |
|-----------------------------|-------------------------------------|--|
| ACGIH | ACGIH TWA (mg/m ³) | 10 mg/m ³ |
| OSHA | OSHA PEL (TWA) (mg/m ³) | 15 mg/m ³ |
| NIOSH | NIOSH IDLH (mg/m ³) | 750 mg/m ³ |
| NIOSH | Remark (NIOSH) | Appendix D - Substances With No Established RELs |

| Quartz (14808-60-7) | | |
|---------------------|--------------------------------------|----------------------------|
| ACGIH | ACGIH TWA (mg/m ³) | 0.025 mg/m ³ A2 |
| ACGIH | Remark (ACGIH) | Lung Cancer; Silicosis |
| OSHA | OSHA PEL (TWA) (mg/m ³) | 50 µg/m ³ |
| OSHA | Remark (OSHA) | (3) See Table Z-3. |
| NIOSH | NIOSH REL (TWA) (mg/m ³) | 0.05 mg/m ³ Ca |
| NIOSH | Remark (NIOSH) | See Appendix A |

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8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Use impervious, waterproof, and alkali-resistant gloves. Do not rely on barrier creams in place of impervious gloves. Do not get Cement Slag inside gloves. Recommended material: Nitrile®

Eye protection:

To prevent eye contact, wear safety glasses with side shields, safety goggles or face shields when handling dust or wet cement. Wearing contact lenses when working with cement is not recommended.

Skin and body protection:

Use impervious, waterproof, abrasion and alkali-resistant boots and protective long-sleeved and long- legged clothing to protect the skin from contact with wet Cement Slag. To reduce foot and ankle exposure, wear impervious boots that are high enough to prevent Blended Cement Slag from getting inside them. Do not get Cement Slag inside boots, shoes, or gloves. Remove clothing and protective equipment that becomes saturated with cement and immediately wash exposed areas of the body. Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved.

Respiratory protection:

Use a NIOSH approved respirator if a risk assessment indicates the use of one is required. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product, and assigned protection factor of the selected respirator. When using a respirator, comply with governing regulatory agencies (OSHA, MSHA, etc.) as required.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|---|------------------------------------|
| Physical state | : Solid |
| Appearance | : Fine powder |
| Color | : Dark grey to white |
| Odor | : Odorless. |
| Odor threshold | : No data available |
| pH | : 10 Approximately |
| Melting point | : 1350 °C |
| Freezing point | : Not applicable |
| Boiling point | : No data available |
| Flash point | : Not applicable |
| Relative evaporation rate (butyl acetate=1) | : No data available |
| Flammability (solid, gas) | : Non flammable. |
| Vapor pressure | : No data available |
| Relative vapor density at 20 °C | : No data available |
| Relative density | : Not applicable |
| Specific gravity / density | : 0.8 - 1.15 g/m ³ Bulk |
| Solubility | : No data available |
| Log Pow | : No data available |
| Auto-ignition temperature | : Not applicable |
| Decomposition temperature | : 700 °C 1.5% on |
| Viscosity, kinematic | : Not applicable |
| Viscosity, dynamic | : No data available |
| Explosion limits | : Not applicable |
| Explosive properties | : No data available |
| Oxidizing properties | : No data available |

9.2. Other information

No additional information available

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SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Alkaline materials for storage.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

| | |
|-----------------------------------|--|
| Acute toxicity | : Not classified |
| Skin corrosion/irritation | : Causes skin irritation. pH: 10 Approximately |
| Serious eye damage/irritation | : Causes serious eye damage. pH: 10 Approximately |
| Respiratory or skin sensitization | : Not classified |
| Germ cell mutagenicity | : Not classified |
| Carcinogenicity | : Suspected of causing cancer (Inhalation, oral). |

Quartz (14808-60-7)

| | |
|------------|----------------------------|
| IARC group | 1 - Carcinogenic to humans |
|------------|----------------------------|

| | |
|-------------------------------------|-------------------------------------|
| Reproductive toxicity | : Not classified |
| STOT-single exposure | : May cause respiratory irritation. |
| STOT-repeated exposure | : Not classified |
| Aspiration hazard | : Not classified |
| Symptoms/effects after inhalation | : May cause respiratory irritation. |
| Symptoms/effects after skin contact | : Irritation. |
| Symptoms/effects after eye contact | : Serious damage to eyes. |

SECTION 12: Ecological information

12.1. Toxicity

| | |
|-------------------|--|
| Ecology - general | : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment. |
|-------------------|--|

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

| | |
|------------------------------|---------------------------------------|
| Effect on the global warming | : No known effects from this product. |
| GWPmix comment | : No known effects from this product. |

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SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not regulated

TDG

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

Calcium Oxide (1305-78-8)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Magnesium Oxide (1309-48-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Ground granulated blast furnace slag (65996-69-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

Calcium Oxide (1305-78-8)

Listed on the Canadian DSL (Domestic Substances List)

Magnesium Oxide (1309-48-4)

Listed on the Canadian DSL (Domestic Substances List)

Ground granulated blast furnace slag (65996-69-2)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

15.3. US State regulations

Calcium Oxide (1305-78-8)

U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

Magnesium Oxide (1309-48-4)

U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

SECTION 16: Other information

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Data sources : Environmental Health & Toxicology - National Library of Medicine [http://sis.nlm.nih.gov/enviro.html]. ECHA - http://apps.echa.europa.eu/registered/data/dossiers/DISS-9d9b1369-7454-687c-e044-00144f67d249/DISS-9d9b1369-7454-687c-e044-00144f67d249_DISS-9d9b1369-7454-687c-e044-00144f67d249.html; GESTIS - http://gestis-en.itrust.de/nxt/gateway.dll/gestis_en/000000.xml?f=templates\$fn=default.htm\$3.0; ChemIDPlus - http://chem.sis.nlm.nih.gov/chemidplus/rn/100-51-6; Sciencelab.com, Inc. MSDS dated May 21, 2013. GESTIS DNEL Database [http://dnel-en.itrust.de/nxt/gateway.dll/dnel_en/000000.xml?f=templates\$fn=default.htm\$vid=dneleng:ddbeng\$3.0].

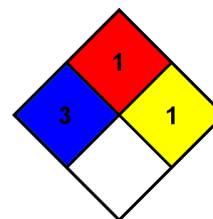
Full text of H-phrases:

| | |
|------|----------------------------------|
| H315 | Causes skin irritation |
| H318 | Causes serious eye damage |
| H335 | May cause respiratory irritation |
| H351 | Suspected of causing cancer |
| H401 | Toxic to aquatic life |

NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard : 1 - Materials that must be preheated before ignition can occur.

NFPA reactivity : 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.



HMIS III Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

SDS US (GHS HazCom 2012)

While the information provided in this safety data sheet is believed to provide a useful summary of the hazards of Cement Slag as it is commonly used, the sheet cannot anticipate and provide all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product. In particular, the data furnished in this sheet do not address hazards that may be posed by other materials mixed with Cement Slag to produce Cement Slag products. Users should review other relevant material safety data sheets before working with this Cement Slag or working on Cement Slag products, for example, Cement Slag concrete. SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY CEMEX, Inc. except that the product shall conform to contracted specifications. The information provided herein was believed by CEMEX to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information to comply with all laws and procedures applicable to the safe handling and use of product and to determine the suitability of the product for its intended use. Buyer's exclusive remedy shall be for damages and no claim of any kind, whether as to product delivered or for non-delivery of product, and whether based on contract, breach of warranty, negligence, or otherwise shall be greater in amount than the purchase price of the quantity of product in respect of which damages are claimed. In no event shall Seller be liable for incidental or consequential damages, whether Buyer's claim is based on contract, breach of warranty, negligence or otherwise. In particular, the data furnished in this sheet do not address hazards that may be posed by other materials mixed with Cement Slag to produce Cement Slag products. Users should review other relevant safety data sheets before working with Cement Slag or working on Cement Slag products, for example, Cement Slag.